DOCUMENT RESUME

ED 157 334 EC 111 819

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TITLE Interactive Television: A Pathway to Futures in Special Education Using Telecommunication.
PUB DATE Jun 78
NOTE 14p.; Paper presented at the World Congress on Future Special Education (First, Stirling, Scotland, June 25 - July 1, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Cable Television; *Computer Assisted Instruction; Early Childhood Education; Educational Technology; Elementary Secondary Education; *Handicapped Children; *Instructional Media; *Physically Handicapped; *Telecommunication

ABSTRACT

The paper describes the combination of a computer assisted instructional system, a cable television system, and multi-media equipment to provide interactive instructional sessions for the handicapped child at school or at home. The Human Resources Interactive Television Program is reported to demonstrate the futuristic functional utility for computers and telecommunications for the enrichment of physically handicapped children in prekindergarten through high school. (Author/SBH)

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# INTERACTIVE TELEVISION
# A PATHWAY TO FUTURES IN SPECIAL EDUCATION USING TELECOMMUNICATION

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# INTERACTIVE TELEVISION

## A PATHWAY TO FUTURES IN SPECIAL EDUCATION USING TELECOMMUNICATIONS

ABSTRACT: The use of video material and computer assisted instruction is not new. Their combination, however, can form the basis for a pathway for the use of telecommunications in special education.

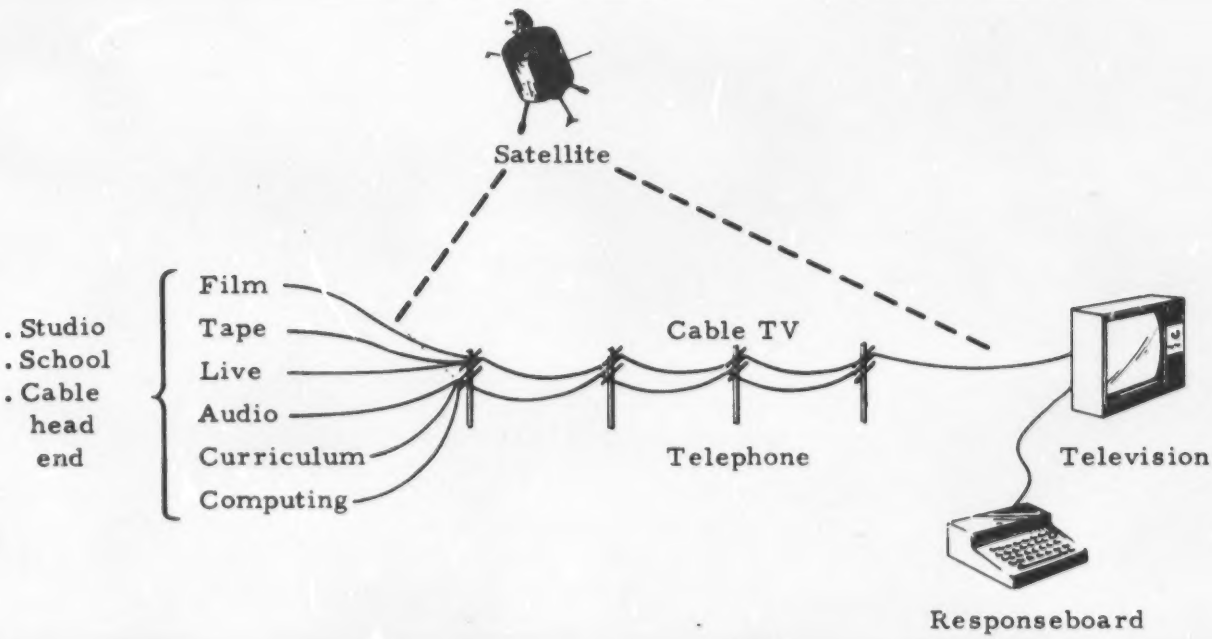
This paper describes the combination of a computer assisted instructional system, a cable television system, and multi-media equipment, to provide interactive instructional sessions at school or at home. The model program is implemented at the Human Resources School in Albertson, New York. The Human Resources Interactive Television Program (HR-INTEL) demonstrates the futuristic functional utility of computers and telecommunications for the enrichment of physically handicapped children in pre-kindergarten through high school.

INTERACTIVE TELEVISION

A PATHWAY TO FUTURES IN SPECIAL EDUCATION USING TELECOMMUNICATIONS

OVERVIEW

Interactive Television is a new aspect of television viewing. Through the use of a keyboard terminal and a computer connection, a person can control and interact with video materials displayed on their home television system, as show. in figure 1 below.




Over the past four years, through a series of grants provided through the New York State Education Department, The Human Resources School has implemented a school/home-bound interactive

television (HR-INTEL) system for handicapped children. The homebound portion of the program was started during the summer of 1977.

Today the HR-INTEL System provides an additional new "channel" for the:

1) Handicapped Child to gain additional confidence, an improved self image, immediate reward, continuous challenges, opportunities for decision making, self responsibility and self reliance through interactive instructional and recreational programs.

2) Special Education Teacher to better access and satisfy the special needs of handicapped children and their families.

3) Parents of the Handicapped to facilitate working closer with the classroom teacher and increase their involvement in their child's growth and development.

BACKGROUND

The Human Resources School is part of the Human Resources Center, directed by Dr. Henry Viscardi. The school is a model educational center for physically handicapped children from pre-school through high school.

Interactive Television is not a very common form of instruction. In fact, with the exception of only one other operational system worldwide, (Project TEL-CATCH, Buffalo, N.Y.) the HR-INTEL system is in "a class by itself". No other system exists that begins to approach the design scope of HR-INTEL. The School system includes an integrated mix of computers, cabling, and mixed media software programming. The system has been built modularly and is continuously operating while it is being expanded. All of the major comprehensive system design elements are operational and in use for model demonstration usage.

In 1974 the school initiated what has now grown to be the national model school-home interactive television learning system. The system includes (1) a school mini-computer, (2) a schoolwide distributed computer based video terminal display system that extends to and interconnects ten classrooms, the school computer learning center, the school library, school administrative offices, and individual childrens' homes, (3) a team of teachers, advisors, and administrative people trained in the use and function of interactive television, and (4) an integrated and teacher screened computer based curriculum.

The following is an outline of the current materials being used in the school:

I. Elementary

A. Pre-Kindergarten

1. Letter discrimination
2. Write own name
3. Counting skills

B. Grades I through VI
1. Mathematics
Developmental Math Skills
Mathematics Games
2. Language Arts
Spelling
Reading
Remediation
Enrichment
Work Games

II. Junior-Senior High School (Grades VII through SII)
A. Arithmentic Word Problem Solving
B. Simulations and Games
C. Remedial Programs
Mathematics
Language Arts
Spelling
D. Social Science
E. Science
F. Health Activation
G. Driver Education

Interactive Television education materials, existing and

planned, form the core of a developmental learning matrix spanning grades K to 12 and continuing into adult education. The matrix will contain at least four developmental tracks in subjects appropriate for the various educational levels. All formal course material from the matrix can be supplemented with teacher and school generated programs with scopes ranging from single remedial lessons to multi-media courses.

Throughout the development of the HR-INTEL program significant attention has been paid to the importance of a program team building effort. An advisory committee consisting of classroom teachers, media resource personnel and school administrative/ management personnel was formed to guide the program. Today, the day-to-day operations of the System are directed and managed by the committee members. The program success to date can be attributed in large part to their active and creative planning and review of the System growth. In addition, their efforts to orient and inservice other interested people, both from within the School/Center and outside, as to how interactive television can serve the needs of children who are handicapped, has promoted understanding and the advancement of this project.

The objectives of the Human Resources Interactive Television Project are multi-faceted. The primary objective however, is to explore the feasibility and impact of an alternative type of eductaion for children with physical handicaps.

The most intriguing part of the system, from the standpoint of

the future of education for the handicapped is the delivery of curriculum to the home. This capability is undergoing pilot testing through the HRS facility. With the ability to deliver the curriculum to the student at home, the impact of interruptions in education due to long absences from school can be minimized.

In the school setting, the student receives his lessons and supplementary material from a television screen linked to the computer over a cable physically linked to the computer in the same building. At home this link is accomplished over a cable provided by Cablevision, Inc. From the child's standpoint, the instruction is the same whether they are in school or out. This helps maintain the morale and momentum for school work through a long absence from the school building itself.

It is noteworthy to point out that the initial reactions to the introduction of computer assisted instruction at Human Resources were highly skeptical. The 1974-1975 prevailing atmosphere of doubt stemmed from (1) previous negative school experiences with teleprinter terminals, and (2) the poorly integrated introduction of computer technology and engineering/programming personnel to the School setting. Dispite a difficult start, the school staff's eagerness to try anew and their willingness to fully participate, provided the basis for what is now a teacher operated and directed School interactive television system, affectionately referred to as "Charlie the Computer".

PROGRAM RESULTS TO DATE

Interactive television at Human Resources has become an integrated part of classroom education. The home interactive capability now enables children to have a continuing sense of classroom participation when they are not physically able to be in class.

Overall, interactive television has:

1) provided expanded opportunities for needed drill and practice exercises

2) increased and improved student self confidence, sense of accomplishment and independence

3) increased student participatory interests in reading, following instructions and directions

4) increased motivation for learning, and

5) expanded student awareness of the potential utility of technology in their lives.

Throughout the Human Resources HR-INTEL Project, parents have been highly supportive of the School's program. This is very similar to the types of parental support received in another

interactive television project conducted in Buffalo, N.Y. In general, parents of handicapped children have been found to be very appreciative and welcoming of new and potentially worthwhile programs that may benefit their child's development.

The overall effect of the system on the home is extremely positive. The system has generated interest that extends well beyond the child it serves. Siblings, the parents themselves and friends and neighbors have found the diversity of programs available on the system interesting, educational and highly entertaining.

The system is referred to by parents as a valuable developmental tool. HR-INTEL is not perceived as a gimmick or as a technological turn-off. The system is treated as though it has a personality of its own. It is found to help discipline the handicapped child and foster an attitude of "can do".

The presence of the home terminal has helped to bring the school into the home. Parents report that HR-INTEL provides them with a fuller appreciation of the type of school work their child is doing. This in turn gives them another area for greater interaction with their child. It also gives their child the capability to immediately "show and tell" their parents about their school work. Overall the system tends to facilitate a greater amount of family and friends interaction with the handicapped child. It promotes greater closeness in new areas, all to the benefit o tn the child, their family, and friends.

The children are observed as being consistently enthusiastic about the programs on the system, both at home and in school. Parents felt that by having the home hook-up, their children are able to keep their "books" off the shelf. This tends to avoid the educational discontinuity that summer and illness usually causes. This is accomplished not only by specific lessons but also through the many educational games available.

Parents and teachers view the positive aspects of the system beyond just the day to day programs it provides. They see HR-INTEL as having good implications for the child's perspectives on their future employment. This was discovered to be true both with regard to the audio-visual and computer fields, and from the standpoint of the child's new perceptions of possibilities of doing a broad spectrum of types of work, at a distance, via this type of system.

The ability for each child to watch one another (privacy was not provided) is perceived as a positive socialization function and as a form of a mutual support system. Such a mutual support function is of vital importance to people, particularly those with handicaps.

## FUTURE PLANS

The post 1978 period of interactive television system research and development is anticipated to be characterized by:

1) Expanded computer storage and processing capability to allow for handling of an enlarged menu of needs that would include Center training, research and development, multi-media, fiscal and administrative functions.

2) Greater delivery of outreach interactive television programs--more programs to more people in the community. This would very likely entail the use of program material transmissions from the Center complex to the community.

4) Experiments involving the use of home refresh units. These units are attached to the home television to provide more utility for cable channels by allowing channels to be used on a time sharing basis. In that way different viewers can receive different still-frame video programs simultaneously, in addition to alpha-numberic information.

5) Expanded applications and development of integrated media computer based curriculum--for instruction, training, and leisure time activities.

6) The completion of a Human Resources multi-media interactive television complex that is an integrated system of television audio-visual display and projections, library and management information automation and multi-sensory learning stimuli for a host of users from training to

management analysis.

7) An ongoing system of planning, development, evaluation and research in the area of multi-media interactive television.

8) Demonstations and assessments of the information transfer potential of mixed and integrated media software/courseware via interactive television.

9) Experiments in the areas of (a) telework--using telecommunications to provide employment/career actualization from a distance, i.e., home to place of work, (b) telehealth--providing health services from a distance using two-way video communications systems, and (c) tele-education--classrooms without walls that include homes, centers, penal institutions, hospitals....all interconnected via telecommunications with life time learning centers such as the Human Resources Center.

Interactive television is an exciting and participatory tool for learning. Technologically it is not new since its equipment components are all "off the shelf". Programatically it is very new. The challenge lies in the ability of users to integrate it into the current stream of education, whether it be in the classroom, in learning centers, or in other surroundings such as in the home.